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trunk, the rate in the leukemia group being over 30 times as great as that in the control group.

Based on the assumption that there is no "threshold effect" and that every exposure to radiation carries with it a definite risk proportional to the dose, these workers estimated that in Britain 8% of leukemias are caused by diagnostic x-rays and a further 3.6% by therapeutic x-rays.

When it is realized that the use of diagnostic x-rays is much more widespread in North America than in Britain, it might be expected that on this continent the proportion of leukemias induced by x-rays may be higher than the 8% estimated by Dr. Stewart on the basis of her studies in Britain. (The World Health Organization estimates that the average exposure to x-rays in the United States of America is about seven times as great as that in Britain.[2])

The results of this investigation indicate that considerable discretion should be exercised in ordering x-ray investigations, particularly those involving exposure to the trunk, lest the risk involved outweigh the benefits derived.

A consideration of the use of barium meals on a routine basis to detect early carcinoma of the stomach reveals some disturbing data with respect to the relative estimated risk of this procedure as compared to its potential benefits. In Ontario, between 1956 and 1960, the average annual death rate from neoplasms of the stomach among males aged 40 to 65 was approximately 18 per 100,000.[3] The proportion of these cases that could be saved by early diagnosis is unlikely to be more than 50%, so that the number of lives saved would probably be less than 9 per 100,000. Employing Dr. Stewart's figures, it can be estimated that one case of myeloid leukemia may be produced for every 46,000 trunk exposures, and that the average barium meal involves seven such exposures. If the basis of these calculations is valid, the risk of developing leukemia as a result of a barium meal is approximately 16 cases per 100,000, almost double the chance of detecting an asymptomatic, curable carcinoma of the stomach.

In these circumstances it would seem reasonable to suggest that in future diagnostic x-rays should not be performed on a routine basis unless it can be shown that the risk from leukemia is negligible in comparison to the benefits offered by early diagnosis.

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## KNIGHTS IN OPEN COCKPITS

MODERN developments in food production, drug manufacturing, the growth of international humanitarian and welfare agencies and other improvements, particularly in air transport, have made possible the rescue of plague-ridden, starving or otherwise distressed peoples in tens of thousands through the intervention of great national and supranational agencies.

Against such a background, the dramatic midwinter mercy flight of Victor Horner and Wilfred R. "Wop" May, recently recalled to the nation's attention by the *Edmonton Journal*, has a faraway, antique flavour. Thirty-three years ago, on January 3, 1929, "Wop" May and "Vic" Horner flew in a small Avro Avian, an aircraft with open fore-and-aft cockpits and a 75-horsepower engine, through a blizzard from Edmonton, Alberta, to Fort Vermilion, N.W.T. Their flight took them over 650 miles of barren terrain never before seen from the air, at a top speed of 85 m.p.h. In this errand of mercy, they carried a supply of diphtheria antitoxin which halted a threatened epidemic in the settlements of Fort Vermilion and Little Red River where diphtheria had raged unchecked for 14 days.

After a long, strenuous and lonely two-week trip, a crack musher of Little Red River arrived at Peace River, 300 miles from home, and telegraphed to Edmonton that unless fresh supplies of antitoxin were sent immediately an epidemic would result. The manager of the Hudson's Bay post had already died and six other residents were stricken.

The *Edmonton Journal* described "two knights of the air, throwing their lives in a desperate hazard with death, riding a slender and fragile thing of wood and silk and steel. It is the greatest thing that has happened in our time—fate working through 20 years of aerial development in peace and war—to have a machine ready to take life to the stricken people of the lower Peace country."

On the first day, the aviators did not reach Peace River town, 320 miles away, but landed after 4½ hours on a lake 50 miles short of their goal because of poor visibility, being forced to fly under 500 feet most of the way. At daylight, Horner and May made the town, refuelled and left for Fort Vermilion before noon. In the meantime, regular broadcasts arranged for a suitable landing strip at the Fort and, through the Royal Canadian Mounted Police, alerted trappers *en route*, in response to Captain May's request, "If we don't get there [Vermilion], have dog teams sent up river (south) to meet us. Plane will follow course of river but weather conditions may . . . force landing on river ice if storm becomes much worse." The mercury at Peace River fell to 29° below zero shortly after the tiny aircraft took off from the ice and, climbing between the piers of the railway bridge, headed north through clearing weather to Fort Vermilion 350 miles away.

Available clippings covering this pioneer mercy flight end on this note of anxiety and uncertainty, but its successful conclusion and the rescue of an isolated northern community are now part of Canadian aviation history.